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EDITED BY N. S. DAVIS, M.D., AND F. H. DAVIS, M.D.

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Original Communications.

BALANITIS.

BY F. K. BAILEY, M. D., KNOXVILLE, TENN.

FREQUENTLY, upon a person calling for medical or surgical advice, we will at once diagnose the case from appearances which are obvious at the time.

What may be developed subsequently, it is often impossible to determine. The following case was diagnosed as balanitis, and at first it appeared susceptible of immediate cure.

April 8th, 1873—I. B. —, aged thirty-five, of sanguine bilious temperament, well formed and muscular, occupation, stone-cutter, called upon me at the office. States that he has had sores upon the membrum virile for a week or more, and fears they may be chancreous. Found on inspection, that at the base of the glans, and bordering upon the preputial reflection, there was a row of small ulcerated spots associated with

papules still unbroken, extending from frænum to frænum.

Considerable discharge of rather offensive character, and copious; cellular tissue slightly infiltrated in the prepuce; very sensitive and painful; no inguinal tenderness. States that he had chancres and bubo in one groin within a year, but had supposed himself cured.

Had connection about fifteen days previously with a woman who was not above suspicion, and hence his fears.

Besides the local troubles, I found his tongue coated, the skin and conjunctiva yellow; pulse about ninety; bowels confined; urine red and hot.

Pres. comp. cath. pills, and a weak solution of carbolic acid as a wash. I also touched the affected parts with carbolic acid and water equal parts.

12th.—Has called in two or three times, when I found the local lesion

unchanged, except increased œdema of the prepuce, and soreness unabated; still yellow, and tongue coated. Added acetate lead to the carbolic wash, and gave calomel and Dover's powder, grs. iij. of the former, and grs. v. of the latter, to be taken night and morning.

21st.—Visited him at his residence, and found the prepuce much swollen and painful. Glans not swollen, and liquids can be made to reach the affected parts. No active inflammation, but parts very sensitive to the touch; bowels open, but skin hot; pulse ninety or more; could not sleep for two nights. Left pulv. Doveri, to be taken every four hours, and continue wash.

24th.—Visited patient, and found that on yesterday, hæmorrhage had occurred, which soon stopped; also, that at 3 a. m. to-day, the bleeding returned, and continued for three hours; reports the loss of a large quantity of blood from the penis, and some from the nose. Saw him at 9.30 a. m., and found the pulse slow, (less than seventy,) soft and small; countenance clear; tongue cleaning; complains of soreness of the gums, which may be a result of mercurial action; had fever every day till to-day; I had sent him quinine on the 22d and 23d, which produced ringing in the ears, and last night he says he was considered delirious by the family. Find the swelling of prepuce much diminished, and on the right side of the glans anteriorly, a small abraded spot, from which the blood had flowed.

There is a pinched and rather bluish appearance to the glans, urine clear, and more abundant; bowels open from castor oil taken last night; free from pain, and has some appetite;

left powder of gallic acid to be taken every three hours, alternated with small doses of quinine; also left Monsel's solution to apply, should bleeding return; diet to be simple, but nutritious.

25th.—Very much improved; can sit up, and the affected parts appear to be healing; no return of the hæmorrhage; to take one gr. quinine three times daily; directed him to touch the ulcerated surface with nit. silver stick once a day.

28th.—Patient called at my office, having walked one and one-half miles; found him much improved in general appearance; tongue cleaning; no fever, and free from pain; on examining the membrum virile, found deep ulcerations upon the glans, which appear to have extended the whole circumference; pus healthy, and the prepuce less swollen, and free from inflammation.

Dressed the parts by means of a small rope of cotton pushed under the prepuce to the ulcerated surface, and saturated with a solution of carbolic acid; gave six blue pills, to be taken night and morning till the bowels move freely. I should have observed that the glands in each groin were somewhat tender, and slightly enlarged. Also prescribed as follows:

R.—Iod. Potassii,	3 ij.
Liquor Iod. Ferri,	3 iij.
Syr. Zinzibius,	a. a. { 3 j.
Syr. Sarsæ Compos,	

M.—Sig. Teaspoonful at each meal and at bed time.

30th.—Bowels open, but says the stools were very lumpy; ulcerations much as on the 28th. Pus healthy. Preputial œdema lessening; can expose the morbid surface much better than at any previous time. Touched

the ulcerated surface with nit. silver, and dressed with cotton wet with sol. carbolic acid. To take castor oil to-night.

May 2d.—Called; much the same; ulcerations not extending; a chancreous looking sore on the front of glans, and another on the frænum.

Applied nit. silver, and dressed as before; tongue cleaner; no appetite, and complains of debility; bowels open. Pres. as follows.

R.—Aromat. Sul. Acid,	3 ij.
Sulph. Cinchonæ	gr.i
Tr. Cinch. Compos.	3 iiss.

M. Sig. Teaspoonful before each meal.

3d.—Appetite improved; ulcerations not extending, but indisposed to heal. At the suggestion of a medical friend applied weak dilutions of nit. acid, and gave pills as follows:

℞ Sulph. Quinine,	grs. xvj.
Pulv. Opii.	" iv.
Calomel.	" viij.

M.—F. Pil. No. 8. Sig. One every four hours.

12th.—Attempted to work a few days, but found that muscular exertion caused some excitement in the parts. But little change in the ulcerated surfaces; applied stick nit. silver, and continued the carbolic dressings.

16th.—General appearance more favorable to healing, but there is still a tardiness not desirable; small ulcerative spots near the frænum, and upon the glans. The integumentary tissue of the prepuce less œdematous; some appetite, and bowels not constipated; but cannot sleep well; applied dry calomel, and gave ten grs. as a cathartic, followed with castor oil.

18th.—Much the same; insomnia, mostly from soreness of the parts; gave brom. potassi. in doses of 15 grs. at night.

22d.—Still indisposed to heal; has taken quinine for a few days past, with some improvement in appetite; has been at work since the 19th; applied iodoform to the ulcerations, and dress with sol. carbolic acid as before; cont. quinine and brom. potass.

23d.—Slight improvement in appearance of ulcers; cont. iodoform and quinine.

24th.—Induration of the integuments increased, with soreness, and the ulcers still indolent; applied opium in powder, with sub. nit. bis-muth.

26th.—Slept better for two nights past, there being but little pain; induration somewhat lessened; cont. opium dressing.

27th.—Induration extending upwards on the penis, upon the left dorsal aspect; ulcers about the same; applied calomel with opium.

29th.—Was sick yesterday from headache, chills, etc.

Called this a. m., when I found the ulcers unchanged, still painful at night. Prescribed black-wash, and as a temporary dressing used opium and salicin. Internally the following:

℞ Nitro-Muriatic Acid,	3 ij.
Sul. Quinine,	gr.i.
Tr. Cinch. Compos.,	3 iiss.

M.—Sig. Teaspoonful morning and evening.

To apply to-night, also opium and salicin.

30th.—Much the same; the ulceration in the cellular tissue of the prepuce disposed to continue, appears to be working through to the surface from the original point of commencement. Applied sol. permanganate potash to the ulcers, all of which are indisposed to heal. To continue acid mixture.

31st.—Morbid surfaces cleaner and more natural in color, except the sinuous canal into the cellular tissue upon the left anterior of the penis. Appearances as if the integument which for some time has been indurated, may all slough off. Poured in solution permanganate potash, which caused more smarting than on yesterday. Patient having had chills for three nights past, followed with fever and sweating; p. m., quinine in four gr. doses till twelve grs. are taken, and to continue acid mixture. Reports that there are two discharges from the bowels every twenty-four hours, thin and bilious; appetite still indifferent.

June 2d.—Called at my office; had fever last night, and the pulse is one hundred; tongue still slightly coated; no change in ulcers; near the frænum on each side, the ulceration threatens to invade the urethral walls; bowels are loose, result of the acid mixture which he is to suspend, and take

R	Sulph. Quinine,	grs. xxiv.
	Pulv. Opii,	" iv.
	Calomel,	" x.

M.—F. Pulv. No. 8.

Sig. One every four hours. Also

R	Labarraques Sol.	℥ vj.
	Permanganate Potassæ,	3 iss.

M.

Use one part to three of water as injection, with directions to keep the whole ulcerated surface free from pus; to keep still and not attempt to come to the city.

11th.—Since the 2d inst., the patient has been visited at his residence by Dr. D. T. Boynton, and until today I had not seen him.

The ulceration has continued to spread, and the integument appears much infiltrated still. Sloughing of

the prepuce has continued, and the parts present a rough appearance; has taken quinine in two gr. doses every four hours with opium; has slept more than at one time, and has some appetite. The chlorine solution has been continued, with permanganate of potash, introduced by means of a long speculum syringe.

17th.—Visited patient with Dr. Boynton; since the last report, much of the infiltrated integument has sloughed away, and the parts externally appear more regular in form.

There is still a sinus upon the dorsum, a little left of the mesian line, which threatens to invade the body of the organ.

Dr. B. made an incision in the direction of the sinus, laying the whole open, thereby relieving an apparent strangulation which lay across the dorsum, and near the corona glandis. On the whole there is evident improvement, and I may add that a few days ago hæmorrhage occurred, which was controlled by sol. persulphate of iron.

To continue tonics and opiates, with chlorinated soda.

July 1st.—Found general condition unchanged; free discharge from the openings, and the cellular tissue still infiltrated. Treatment to be continued.

13th.—Did not see the case till today. The body of the penis still much enlarged, and the cellular tissue involved to within an inch of the prepuce. General health not improving. There is an ulcer upon the anterior right tibial region at about the lower third, which assumes an unhealthy appearance.

Indisposed to heal; has been taking tr. mur. ferri. with quinine, calo-

mel occasionally when the bowels are torpid, opium P. R. N.

The case being under the care of Dr. Boynton, I did not see the man until

August 9th.—Found the organ enlarged, and a deep sinus opening upon the surface on the right side. Pus appears to come from it more free than at any former period; has been injecting sol. carbolic acid in sweet oil, and taking tonics with brom. potassii. Ulcer upon the leg extending, and is quite deep. Despondent and impatient; to continue treatment, and to dress the leg with stimulating applications.

13th.—During the absence from town of Dr. Boynton, I have visited this case of late, and to-day called Dr. Boyd to accompany me. Decided to lay open the sinus, and therefore introduced a director as far as it would reach, passed a probe pointed bistoury in, and cut out about an inch in extent; there was some hæmorrhage, but it was soon stopped by pressure; dressed so as to keep up apposition of the sinus walls. To continue tonics.

17th.—The opening made by the bistoury is wide and gaping, but the general appearance not any more unfavorable. Simple dressings.

Oct. 1st.—Owing to illness, I had not been able to see this man, and he passed into other hands; I learn however that the penis is healed; no further discharge of pus since the operation; ulcer upon leg extending in size, and not improved in appearance.

Jan., 1874.—I have lately learned that this man went to the Hot Springs, Arkansas, during the autumn, and returned much improved; no return of

the ulcerations upon the membrum virile, and the sore on the leg healed.

He was treated by means of large doses of iodide of potassium, which was the principal internal medication. I have not seen the man for four months, but understand his health is fast improving.

The above case is given somewhat in detail, as an instance of persistent ulceration and sloughing in a locality which for obvious reasons is slow to heal when diseased.

The man was broken down in health in consequence of his excesses, having been a subject of syphilis before the war. He was a soldier in the Federal army, and since his discharge therefrom, has been far from regular in his habits. On his first calling upon me, the morbid appearances described were such as we often find, and defined as balanitis.

The sequel proved that a deep-rooted affection had to be dealt with.

The terms balanitis and posthitis are alike applicable, for both the glans and prepuce were involved. An important feature in the case was the persistent obstinacy of the ulcerating tissue. It seemed at one time that the whole organ was bound to slough off; every local application appeared to have no effect, and only constitutional remedies were effective at last.

Ordinary gonorrhœal balanitis is quite common, and unless complicated with phymosis, easily cured. During the last spring, I met with three cases, and all negro boys not over fifteen years old, in which the prepuce was drawn over the glans, and could not be retracted when they called in. One of the number ceased his calls when told that an operation might be necessary. In the others I operated

by cutting the prepuce with a bistoury, to relieve pressure. One soon got well, but the other was protracted by an œdematous condition of the whole organ, and a gleety discharge which was very obstinate. There was also induration in the inguinal glands upon the right side, and I had reason to believe there had been chancrous sores previously to his

coming under my care. I have met with many cases of excoriations upon the glans in negroes, whose habits are filthy, and that cohabit with a class of women who are never free from some disgusting condition of the genitals, such as herpetic eruptions, condylomata, and eczematous sores around the vulva, as well as vaginal leucorrhœa, and gonorrhœal discharges.

HERNIA OF THE WHOLE BOWEL.

BY H. H. BRIGGS, M.D., OF CHATTANOOGA, TENN.

L. A. R., aged 21 years; native of Tennessee. Farmer's daughter—always healthy and strong; physically, well developed; used to sturdy, out-of-door life and labor, was taken in travail, on January 11th in the evening. After an easy, though somewhat lingering labor, she was delivered, by a midwife, of a child, the unnatural appearance of which, caused the attendants to send for their physician, Dr. J. B. Norris. The child lived thirty hours.

On the morning of the 15th, at Dr. Norris' request, Dr. G. A. Baxter and I went down with him and made an autopsy.

Post-mortem, thirty hours after death. Cadaveric rigidity not marked. Body weighed three and one-half pounds, and was apparently that of a seven months' child. No marks or spots of any kind upon it. Dr. Norris assured us that it had not changed perceptibly in appearance since death.

Projecting from the abdomen, there was a tumor as large as two folded fists, bright red in color, and appar-

ently made up of intestine. Tracing the tumor by its pedicle, we found that the latter entered the abdomen, at a quarter of an inch external to the umbilicus, and entirely separate from it.

Examining closely for evidences of a sac, we found none on the body of the tumor, but around its pedicle and extending for one-half inch from the abdominal walls, was attached a clear membrane, which we thought to be the parietal peritoneum, and dissection proved it to be such.

Opening the body, we found the lungs, heart, liver and spleen, natural in size, color and consistence. Following down the alimentary canal, we found the œsophagus and stomach natural, but the duodenum led directly from the pylorus to the opening in the walls of the belly.

Tracing the intestine down, fold by fold, the duodenum, the jejunum, the ileum, and the whole of the large intestine, except the rectum, were found to be extra-mural.

The extruded bowel was thickened, firm, and of a bright, red color. Its

serous coat was hardly to be seen or separated from the muscular. We noticed no adventitious membrane, nor any recent lymph.

The muscular coats of the bowel were markedly hypertrophied, showing the condition to have been of long standing. The mesentery was thickened and firm, as is indeed common in old umbilical herniæ. We found eight nodules scattered over it, solid to the touch, yellowish in color, and cheesy on section. The edges of the hernial ring were firm, clearly defined, whitish, and quite cartilaginous under the knife. We could see no granulations or evidences of recent inflammatory action. The seeming inflammatory adhesions between the mural peritoneum and the pedicle of the tumor, together with the glazed, contracted edges of the orifice in the walls of the belly, inclined us to the belief, that the hernia was due to a rupture of the parietes, rather than to a deficiency in them. It was pro-

duced at an early period in foetal life. In none of the few books at our command, do we find mention of a ventral hernia of the whole bowel, occurring in early foetal life: the child going to term and living for some hours after birth. With our present notions as to the suspension of the child in fluid during interuterine life, it is not easy to see how force could be brought to bear sufficient to produce a traumatic, ventral hernia; yet it seems probable that such was the case in the present instance. We know of no treatment applicable to the case.

The disparity between the development of the abdomen generally, and that of the extruded bowel, would have prevented its return.

It was impossible to close the exploratory incision with the tumor inside, so that enlarging the hernial ring would not have made reduction possible. Taxis would have availed nothing.

Clinical Reports.

PERICARDITIS WITH BRONCHO-PNEUMONIA.

A CLINICAL LECTURE IN THE MEDICAL WARDS OF THE MERCY HOSPITAL,
BY N. S. DAVIS, A.M., M.D., PROF. CLIN. MED.

GENTLEMEN: The patient before you is a native of Ireland; aged about twenty-two years; a laborer; naturally strong and athletic. He was admitted to the hospital six days since, and was reported to have been sick nearly two weeks previously.

He had been suffering from severe cough; pain in the chest, aggravated by motion; shortness of breath, and fever.

At the time of his admission, his face was deeply suffused with purplish redness; the cutaneous surface gen-

erally, and especially over the extremities, congested and cool; expression of countenance dejected and anxious; respiration short, hurried, and difficult; expectoration scanty, tenacious, and slightly bloody; cough frequent, and suffocative; pulse small, soft, and 120 per minute; tongue covered with a white coat; bowels inactive, and urine scanty. He complained of severe pain and soreness in both sides of his chest, but more severe in the cardiac region than elsewhere.

Percussion revealed entire dullness over the lower and posterior part of the right side of the chest, extending from the axilla to the diaphragm, and from the border of the pectoral muscle to the spine. The area of cardiac dullness was greater than natural, but over the rest of the left side of the chest, the resonance was nearly natural.

Auscultation, detected an unusually loud pericardial friction over the whole cardiac space, with increased impulse, but no unnatural valvular murmurs. A mixture of dry and coarse mucous rhonchi were heard over all the anterior part of the chest, except the cardiac space; but the lateral and posterior part of the right side gave only a sharp, sub-crepitant rale, with apparently very limited inflation. After the members of the class had individually noted the present physical signs, their attention was directed to a careful comparison of these with the general symptoms and history of the case, for the purpose of arriving at a full diagnosis.

The sharp pains, the frequent small pulse with loud pericardial friction, and full impulse, clearly indicated acute-pericarditis, with plastic exudation. The mixture of dry, wheezing,

and coarse mucous sounds, with but little alteration of resonance over the anterior and left side of the chest, indicated general bronchitis, while the dullness on percussion, the limited expansion, and the fixed, sub-crepitant rale, in the lateral and posterior part of the right side, indicate intense pneumonic engorgement or solidification of the corresponding part of that lung. The length of time the patient had been sick, compared with the present phenomena, rendered it certain that the inflammatory action in the pericardium, bronchia and right lung, was in the second stage of its progress.

The prognosis in this case is decidedly unfavorable. First, the pericardial inflammation may result in so much effusion, both plastic and serous, as to fatally embarrass the action of the heart. Second, the exudation into the right lung may be so copious in consequence of the excited condition of the heart, and the imperfect decarbonization of the blood, as to induce gangrene of some portion of lung tissue coupled with diffuse suppuration, and copious puruloid and foetid expectoration. Third, the patient may escape both the foregoing perils, and yet become suffocated from oedematous infiltration into the portions of the lungs not involved in pneumonia. When the patient was first admitted to the hospital, the very strongly marked friction sound over the whole cardiac space, coupled with the extreme dyspnoea, caused us to cover his chest with emollient poultices, and give him a powder of calomel, two grains, and bicarbonate of soda and Dover's powder, each five grains, every four hours, and a teaspoonful of the following prescription, between :

R.—Hydrochlorate of Ammon.,	℥ iii.
Sulph. Morph.,	grs. iii.
Tart. Ant. et. Pot.,	grs. ii.
Tinct. Digitalis,	℥ i.
Syrup Liquorice,	℥ iii.

Mix.

Under this treatment, the pericardial friction has decidedly diminished, and both pulse and respiration have somewhat diminished in frequency. The danger from the pericardial inflammation is therefore lessening, and is not so much to be dreaded in the future as either of the other important pathological conditions named.

We will now place a blister over the right side of the chest, continue the prescription containing the hydrochlorate of ammonia, one teaspoonful every four hours, and alternate with it, sulphate of quinia, in doses of two or three grains, and feed him regularly with bland nourishment.

The quinia is given for the purpose of increasing the tone of the pulmonary capillaries, and thereby lessening the danger from pulmonary œdema, as well as to exert a general tonic influence. After one week had elapsed, the attention of the class was again called to the same patient.

He had continued the treatment just named during the first half of the week, when the expectoration becoming more copious, thin, purulent, and offensive, while the general bronchial rhonchi and pericardial friction had continued to decrease, two grains of pulv. g. camphor, and one-eighth of a grain of morphia was added to each dose of the quinia, and the hydrochlorate of ammonia mixture was exchanged for the following:

R.—Liquor Ammon. Acetatis,	℥ ii.
Camph. Tinct. Opii,	℥ ii.
Carb. Ammon.,	℥ iss.

Mix. Take one teaspoonful every four hours, in water.

This treatment, with as much nourishment as the patient could be induced to take, has been continued to the present time. The attention of the class was called to the fact, that the pericardial friction had now entirely disappeared, and the cardiac sounds were natural. The bronchial rhonchi had also disappeared from the left side of the chest, and the resonance was nearly natural; while over the whole lateral and posterior part of the right side, there remained entire dullness—no vesicular murmur, but anteriorly a coarse, movable, moist rhonchus. The patient is expectorating large quantities of a thin, muco-purulent matter, emitting a very offensive or putrid odor; his pulse is frequent and weak; his countenance pale and shrunken; and his expression anxious. From the symptoms now presented, it is evident that the bronchial and pericardial inflammations have nearly disappeared, while the pneumonia, involving the middle and lower part of the right lung, has resulted in gangrene of a portion of the inflamed structure, which is now undergoing disintegration, and giving rise to the copious and putrid expectoration. This was one of the dangers pointed out at the previous clinic, and it is now apparent that it will soon terminate the life of the patient. Gangrene of the lungs, as a result of pneumonic inflammation, is certainly of rare occurrence in this locality, this being the first well marked case that has come under our observation in several years.

It is probable, that in the early stage of the case, the exudation from the over-distended capillaries was so copious, as to completely obstruct the circulation through a circumscribed

portion of the inflamed tissue, in which case, death of the part must speedily ensue; or at a later period when the circulation was greatly embarrassed by the coincident pericarditis and bronchial obstruction, emboli may have formed in one or more of the arteries of the inflamed lung, plugging them so completely as to cut off the supply of blood to a limited portion of the tissue.

It will be remembered, that the patient had been sick at least one week before his admission to the hospital, and consequently, the first or congestive stage of the pneumonia had already passed, and exudation and hepatization had progressed so far, as to cause well marked dullness on percussion with suppression of the vesicular murmur; and from the extreme dyspnoea, with purple hue of the countenance, cool extremities, soft and quick pulse, it is probable, that if gangrene actually exists, it took place in the manner first mentioned; and it properly suggests the question, whether free bleeding from the arm during the first twenty-four or forty-eight hours after the commencement of the attack, might not have so far lessened the engorgement of the pulmonary vessels, and thereby limited the amount of exudation, as to have prevented the entire obstruction which has followed? From frequent opportunities to observe carefully the effects of prompt bleeding in the first stage of pneumonia, pleuro-pneumonia, and

cardiac inflammations, we are as certain that such bleeding is capable of, at least, temporarily relieving or lessening the vascular fullness in such cases, as we are that quinia is capable of interrupting the paroxysms of an intermittent fever.

We cannot, therefore, sanction or justify that extreme professional opinion which would require you to exclude entirely the use of the lancet in medical practice. To be beneficial, however, the bleeding must be practiced in the first stage of the inflammation. After the tissue is already filled with exudative material, outside the capillary vessels, the abstraction of blood by venesection can do no good. At present, it is not likely that any treatment will do more than to palliate the cough, and temporarily sustain the strength of the patient. We will continue to encourage him to take nourishment, with moderate doses of opium and stimulants.

Note.— During the twenty-four hours succeeding the time of the last clinical examination, the patient became steadily more exhausted; the sputa more offensive, and of a dark brown color, as if mixed with disintegrating tissue; the mind became wandering; he refused all ingesta, and died on the evening of the third day. Although a *post-mortem* examination was much desired, yet it was refused by relatives, who immediately claimed the body for burial.

Translations.

PROGRESS OF MEDICAL SCIENCE IN GERMANY.

BY EDMUND J. DOERING, M.D.

- I. SNOW AS A CLEANSING AND STYPTIC APPLICATION FOR SURGICAL WOUNDS, BY DR. HASSE (*Centralblatt für Chirurgie*, No. 38). II. PLEURITIS; EMPYEMA; PARACENTESIS THORACIS; CURE, BY DR. BLASCHKO (*Allg. Med. Central Zeitung*, No. 100). III. MEDICAL EXAMINATIONS IN GERMANY.

I.

SINCE we are able to perform operations on the extremities without the loss of a drop of blood by Prof. Esmarch's method, we experience much more than formerly the great inconvenience of hæmorrhage whenever we have to operate on parts of the body where a compression of the blood-vessels is inadmissible; and still more so, if at the same time the capillaries and veins of the parts are overloaded and distended. Especially is this true of tracheotomy, for often it is essential here to hasten the various steps of the operation, rendered difficult by troublesome hæmorrhage.

Several times we had to perform this operation on winter days, when there had been a recent fall of snow. We gathered some of the latter, and used it instead of sponges, for the cleansing of the wound. When a handful of soft snow is pressed firmly for a few seconds on the wound, it will present a true cast thereof on being removed, leaving the cut surface free of blood, and benumbed for a while. The blood is absorbed much better by snow than by a sponge—and furthermore, the uniform com-

pression, and the local influence of cold, causes the snow to act as an astringent on the cut capillaries and smaller vessels—and finally, through this latter property, also, as an anæsthetic on the nerves.

Thus, by repeated application of soft snow, we have a substitute for Prof. Esmarch's method, allowing a rapid and safe termination of the operation, and enabling the surgeon to operate with less chloroform than is usually required.

It is to be regretted that we cannot always have access to this excellent resource; for even at the proper season of the year, only quite soft snow is fit for our purpose. The snow must also be gathered very carefully, which is best done by lifting it up from the ground with a light shovel, and throwing it loosely on a flat dish.

II.

Since the introduction of improved instruments for the tapping of pleuritic effusions, the number of recoveries from pyothorax and hydrothorax have largely increased, especially of the latter disease, where in operating, it is of great consequence to prevent the entrance of air, which can be done

very effectually by means of the aspirator. Thoracentesis must, therefore, always be preferred to a tardy absorption or a spontaneous evacuation of the effusion.

To insure a recovery, many operators have been compelled not only to perform thoracentesis repeatedly on the same patient, but also to wash out the pleural cavity by means of injections. For this reason, the following case of empyema may be of interest, showing a complete recovery within a short time, after a single operation for the removal of the pus, with careful after-treatment.

Miss B., aged fifteen; has had fair health until her present illness, which commenced suddenly after exposure to cold, in June, 1874, with all the symptoms of an acute attack of pleurisy. The attending physician did not succeed in preventing an abundant effusion from taking place, or in promoting the absorption of the same during a period of two months. We were called to see the patient in the middle of August. We found her looking pale and greatly emaciated. Pulse quick; temperature increased; night-sweats, and an abundant catarrhal expectoration. The patient complained of tightness across the chest, sleeplessness, and a feeling of anxiety. Appetite lost; menstruation arrested. Physical examination showed the left side of the chest enlarged, bulging of the intercostal spaces, with complete dullness on percussion from the second rib downwards. Respiratory sounds absent: heart transposed to the right. On the left side of the chest, portions of the fourth and fifth rib projected irregularly, justifying apprehensions of caries and external

discharge of the fluid contents of the thoracic cavity.

The fever and cough continuing, the emaciation progressing, the weakness increasing, with a copious discharge of sputa, and the inability to cause the absorption of the purulent fluid, either by external or internal remedies, thoracentesis had to be thought of, as offering the only chance of saving the patient's life. Prof. Waldenburg was called in consultation, and fully agreed with us in the advisability of the operation. We performed the operation without the administration of chloroform to the patient. The tap trocar was passed into the pleural cavity between the fifth and sixth rib, brought in connection with the aspirator, and about twenty-five ounces of a creamy pus drawn off. The wound was closed by a piece of sticking plaster. No injections of any fluids were made into the pleural cavity, and the opening was completely closed on the following day, no more pus having been discharged.

The patient felt immediately relieved after the operation; she coughed less, and rested well the following night. Quinine, iron, and beef-tea, were prescribed, and the patient sent to the country.

Prof. Waldenburg, finding on physical examination, still a portion of the purulent fluid within the pleural cavity, feared that the operation would have to be repeated. But this did not prove to be necessary, for within four weeks, no trace of any fluid could be detected, the patient having completely recovered. The rapidity of the cure was certainly greatly accelerated by the residence in the country, the salubrious country air,

leaving the patient mostly out doors, the internal use of cod-liver oil, and the external application of tincture of iodine.

At present, the young lady is in the enjoyment of perfect health, having a good appetite, getting stronger, and being free of cough. In this connection, we desire to call attention to the following points :

(1.) The differential diagnosis between pyo and hydrothorax, must be based more on the general symptoms, than on physical examination alone. If the fever does not subside after the use of quinine and digitalis, and emaciation progresses, night-sweats set in, then the presence of pus in the pleural cavity is established beyond a doubt.

(2.) Chloroform must not be administered, as the patient, by repeated coughing, can materially facilitate the discharge of the pus.

(3.) Injections of warm water, or of any other fluid, are not necessary.

(4.) A portion of the pus may remain in the pleural cavity, without necessarily retarding a complete recovery.

(5.) Thoracentesis is the best method of saving life in such desperate cases.

III.

The graduates in medicine of the nine Universities of Prussia, Germany, are compelled by law, to present themselves before a "State Board of Medical Examiners," for examination, before they can be licensed to practice medicine in that state. This same law also exists, and is rigidly enforced in the other states of the German Empire ; likewise in Austria,

France, England, and in nearly all of the other prominent countries of the world, with the exception of the United States of America.

The following table shows the result of the examinations in Prussia during the past year, and conveys also an idea, how rigid these examinations are, for about twenty-five per cent of the candidates were rejected ; and we might further add, that no candidate is allowed to go up for examination, unless he can prove, by certificates, that he has attended at least eight courses of medical lectures — equivalent to four years study :

1873-74.			
UNIVERSITIES.	NO. OF CANDIDATES.	PASSED.	REJECTED.
Berlin,	124	89	35
Bonn,	39	33	6
Breslau,	37	32	5
Goettingen,	34	32	2
Greifswald,	81	61	20
Halle,	63	49	14
Kiel,	21	18	3
Koenigsburg,	45	25	20
Marburg,	33	30	3
Total,	477	369	108

The sum total of physicians licensed in the whole German Empire for the year 1874, is only 660.

During the same year, the innumerable medical colleges of the United States of America, graduated three thousand students.

In conclusion, we add for comparison, the following table :

1874.		
COUNTRY.	NO. OF INHABITANTS,	PRACTITIONERS LICENSED IN 1874.
Germany,	42,000,000	660
United States,	40,000,000	3,000

Further comment is unnecessary.

Editorial Department.

IDIOTIC AND FEEBLE-MINDED CHILDREN.

WE have received a copy of the Memorial prepared by a committee of the Illinois State Medical Society, asking the legislature of the state to make appropriations for erecting a suitable building for the reception, training, and care of the idiotic and feeble-minded children of the state. The number of such children in the state is estimated at not less than 3000; while the old building at Jacksonville, which has been occupied for a school of this kind since 1865, accommodates only 104, and yet has on its records over 680 applicants for admission. The great value of schools for this unfortunate class has been fully demonstrated by the institutions established in Massachusetts, New York, Connecticut, Pennsylvania, Ohio, Kentucky, and Georgia.

The committee of the state society has done its work well, and no more meritorious subject will be brought to the attention of the legislature during its present session. The following is from the report of the State Board of Commissioners on Public Charities.

The Institution for Feeble-minded Children renews this winter the application made two years ago, for an appropriation of \$200,000, of which \$25,000 is for the purchase of a site, and \$175,000 for the erection of a building designed to accommodate not less than 250 pupils.

Of this enterprise the board say: "There is no enterprise of a charitable nature in the state of Illinois which commends itself more to our sympathies than this. It seems to have been regarded by the legislature hitherto, like Bethlehem Ephrata of old, a 'little one among the thousands of Judah,' and it has been compelled to wait for its establishment upon a permanent basis until the very last. It was organized in 1865, as an experiment, under the control of the directors of the Institution for the Education of the Deaf and Dumb. In 1871, the people of the state, by their representatives, granted it an independent existence and a charter. But it still occupies leased property in the city of Jacksonville, for which it pays an annual rental of \$1,000. The group of cheap wooden buildings which has sprung up around the old Duncan mansion, in which the superintendent and officers reside, is a perfect tinderbox, exposed every hour to the danger of taking fire from the stoves by which the premises are heated. Should such an accident occur, the entire structure would burn to the ground, under favorable circumstances, in fifteen minutes; and in all human probability some of the unfortunate inmates would perish miserably in the flames. Even if this were not so, the purely temporary and very inconvenient character of the accommodations, which are inad-

equate for the reception of more than one hundred pupils, greatly increases the aggregate as well as the *per capita* cost of the institution. It has been often and truly said that the enterprise should either be provided with better quarters or abandoned altogether. A careful observation of its practical working, during the past six years, has satisfied us of its utility and value. We have never had a doubt that the general assembly would, at some day, make a building appropriation for the benefit of the idiot school. We hope that it will do so this winter. The application for

\$175,000 is based upon an actual plan by an architect of ability, and upon actual estimates of cost of construction, in accordance with said plan. The sum of \$25,000 for the purchase of land will perhaps not appear excessive when it is considered that the institution needs a farm of large area, both for the pasturage of cows (these children consume a great quantity of milk) and to furnish a means of physical development and practical education of the boys by farm labor, and that this farm must be adjacent to or not far from some large town."

HEALTH OF PUBLIC REFORMATORIES.—At a recent meeting of the State Board of Health of Michigan, Dr. R. E. Kedzie reported the results of his examination of the different reformatory institutions of that state, with special reference to their ventilation and water supply. It is stated, that in all of them, he found the ven-

tilation bad, the air yielding from fourteen to thirty-two parts of carbonic acid gas in ten thousand parts of air, and the water more or less foul. It is to be hoped that his recommendations of legislative action will be speedily complied with by the law-makers of that state.

Society Reports.

TRANSACTIONS OF THE CHICAGO SOCIETY OF PHYSICIANS AND SURGEONS.

REGULAR MEETING, JANUARY 11, 1875.

Reported by R. E. Starkweather, M.D.

DR. JOHN BARTLETT, President, in the chair.

TUMOR OF DENTINE.

Dr. Andrews reported a case of unusual interest and rarity, and accompanied the same with an exhibition of a microscopical preparation of a portion of the material removed, furnished him by Dr. Curtis.

A writer in the recent edition of Holmes' Surgery, cites, and knows only of twelve cases of tumor of dentine, of which only six are of this kind. Dr. Andrews had heard of but one case in this city similar to his.

Dental tumors are of two sorts. The first is a simple deformity of the tooth, its structure not being changed.

The second sort is where the teeth depart from the normal structure altogether; generally, the molar teeth are the ones thus affected and deformed.

The patient, a lady of eighteen years of age, exhibited a swelling on the side of the jaw, where the wisdom tooth should have presented itself, very much as though a projecting bony tumor had been produced by a simple periostitis. A few months after having first seen the patient, the tumor or cyst began to suppurate, and it was at once incised. Upon probing, something like dead bone was felt, and the prominent point of the tumor had ulcerated through the gum. The patient having been anæsthetized, a longitudinal incision was made along the gum, and ineffectual attempts made to extract a supposed tooth. At length, by using a pair of curved gouge forceps, a fragment was broken off. In this manner, most of the then projecting portion of tumor was removed, and carbolated lotions ordered. Eight weeks later, there had been a slight loosening of the mass, and a little elevation thereof; and under anæsthesia, by using the tooth forceps, a rounded, tuberos body was removed from the cavity where a tooth should have been, which, on examination, proved to be composed of dentine. Its length was an inch and a quarter, and its thickness half an inch.

SARCOMA AND CARCINOMA.

Dr. Andrews made some remarks as to the clinical history of the sarcoma and carcinoma, their differential diagnosis, microscopical and physical, illustrating the same by reports of cases, and by microscopical speci-

mens and drawings, prepared and furnished by Dr. Curtis, of carcinoma of the breast. He related three cases, microscopical specimens of which were prepared and displayed to the society by Prof. Curtis. The first was a sarcoma from a patient who had five such tumors, and recently died of erysipelas and peritonitis. Two of the tumors had been excised and returned, but there was no infection of the lymphatic glands. The second case was a carcinoma of the uterus, which Prof. Curtis diagnosed by the microscope during the life of the patient. The subsequent history and death confirmed his diagnosis. The third case was a carcinoma excised, by Prof. Andrews, from the side of the foot nearly two years ago. It has not yet returned.

Incidentally, Dr. Andrews remarked that it seemed to him that there were more cases of cancerous growths in northern Wisconsin, than in regions south of us; that consumption and cancer often prevailed in the same climates, and were more abundant the nearer one approaches to the sea coast of this country; and at equal distances from the sea, statistics show that they are more common at the north and less frequent as we go south.

HISTOLOGY OF CARCINOMA.

First, there is a fibrous frame-work in which are impacted a quantity of small, round cells, that is to say, bands of fibres interlace and leave lacunæ, and these are packed full of rounded cells. The best histologists consider these lacunæ to be lymphatic spaces, lined with the same endothelium as the lymphatic vessels, and constituting, in fact, a part of the lymphatic

system. Hence the round cancer cells are contained in the interior of the lymphatic cavities, and, being easily detached from each other, whenever any of them become loose they float along the absorbent vessels until they are stopped at the first set of lymphatic glands. There they grow and produce another cancer. This is the reason why carcinoma regularly infects the absorbent glands. A characteristic of these cells in carcinoma is, that they can be easily brushed out, leaving the cavities or lacunæ empty—they can thus be easily conveyed through the body.

There is a certain class of tumors hard to destroy, called the sarcoma or flesh tumor. A few weeks ago, a woman, eighteen years of age, presented herself to me for treatment, upon whom there were several of these growths. They had been enlarging and increasing for upwards of two years. A year ago, two had been removed, but both returned, and one became larger than it had previously been. The tumors were from the size of a hazel nut to two inches in diameter—hard, not painful—the neighboring lymphatic glands were normal in every respect. There were two on the right thigh, but the inguinal glands were sound; there was one tumor in the left inguinal region of the abdomen, and suppurating. In every case, the lymphatic glands were perfectly normal, for sarcoma does not develop in the lymphatic spaces. Its cells are outside of them, hence are not taken into the absorbents. The cells of the sarcoma ad-

here more closely to each other than do those of carcinoma; they are spindle-shaped, and more like a fibroid tumor, so that it is sometimes hard to distinguish between sarcoma and fibroid tumors.

The sarcoma, unlike the carcinoma, has no frame-work apart from the cells. As a general rule, a diagnosis can be made between carcinoma and sarcoma. The hope of cure by excision, is greater in the latter than in the former.

Dr. Hyde thought it a difficult point as to whether a medullary sarcoma might not be considered cancerous. It was somewhat remarkable that in a recent discussion on cancer, in New York, Dr. Willard Parker had said that cancer was no longer to be considered as hereditary; that it often occurred in families with no previous history of cancer.

Dr. Curtis thought that there was a difference between sarcoma and carcinoma; the former throughout is made up of similar tissue—the latter is made up of entirely different elements. The colloid material is a degeneration of cancerous material, just as cancer may undergo fatty degeneration. The colloid is a transformation; it is an exaggerated species of cancer, the cells greatly dilated. In cancer, there is no shading off of the cells into the fibrous tissue. The term cancer, like that of consumption, has been abandoned by some authors—it is too general an expression.

After further discussion by Drs. Simon, Hyde, Merriman and Andrews, the society adjourned.

EDITORS CHICAGO MEDICAL EXAMINER:—The Physicians and Surgeons of Will County, Illinois, met at

the office of Dr. A. W. Heise, in Joliet, on January 5th, 1875, and organized "The Will County Medical

Society," by adopting a Constitution and By-Laws, in conformance with the Constitution of the State Medical Society.

Fourteen regular physicians became permanent members.

The officers elected for the current year, are A.W. Heise, M.D., of Joliet, President; E. R. Willard, M.D., of Wilmington, Vice-President; Censors, Geo. C. Raynor, M.D., of Joliet, Chas. H. Bacon, M.D., of Lockport, D. J. Merriman, M.D., of Wilming-

ton; William Dougall, M.D., of Joliet, Secretary and Treasurer.

Drs. Speer and Abbott were elected Honorary Members.

Drs. Bacon and Mitchell were appointed to read essays at the next regular meeting.

Regular Meetings are held quarterly, in Joliet, on the first Tuesday of each quarter.

WILLIAM DOUGALL, M.D.,
Secretary.

JOLIET, Ill., Jan. 11, 1875.

Gleanings from Our Exchanges.

ON THE HAND-FEEDING OF INFANTS.

BY EUSTACE SMITH, M.D., LONDON.

THERE are few subjects of greater interest, or of which it is more important, in a sanitary sense, to possess an accurate knowledge than that which relates to the feeding and nurture of infants. Many mothers are unable to nurse their babies, and there is an increasing dislike to transfer maternal duties to a hireling; consequently, the question how best to provide a fitting diet for a being whose digestive powers are feeble and immature, but whose growth and healthy development are dependent upon a suitable supply of nourishment, is one to which it is of the utmost importance to furnish a correct answer.

The mortality among children under the age of twelve months is enormous; and of these deaths, a large proportion might be prevented by a wider diffusion of knowledge, of one of the least difficult of subjects. The rules for the efficient nourish-

ment of infants, are plain and simple, and the application of them, although requiring tact and judgment, is yet not a matter which ought to occasion any extraordinary embarrassment.

The great principle at the bottom of all successful feeding—viz., that an infant is nourished in proportion to his power of digesting the food with which he is supplied, and not in proportion to the quantity of nutritive material which he may be induced to swallow—is so obviously true, that an apology might almost seem to be required for stating so self-evident a proposition; but experience shows that this simple truth is one which in practice is constantly lost sight of. That that child thrives best who is most largely fed, and that the more solid the food the greater its nutritive power, are two articles of faith so firmly settled in the minds of many persons, that it is very difficult indeed to persuade them to the contrary.

To them wasting in an infant, merely suggests a larger supply of more solid food; every cry means hunger, and must be quieted by an additional meal. To take a common case: A child, weakly perhaps to begin with, is filled with a quantity of solid food which he has no power of digesting. His stomach and bowels revolt against the burden imposed upon them, and endeavor to get rid of the offending matter by vomiting and diarrhœa; a gastro-intestinal catarrh is set up, which still further reduces the strength—every meal causes a return of the sickness; the bowels are filled with fermenting matter, which excites violent griping pains, so that the child rests neither night nor day; after a longer or shorter time, he sinks, worn out by pain and exhaustion, and is then said to have died from "consumption of the bowels."

Cases such as the above are but too common, and must be painfully familiar to every physician who has much experience of the diseases of children. When seen sufficiently early, the treatment of the derangement is simple and the improvement immediate, but it unfortunately often happens, especially among the poorer classes, that application for advice is delayed until the child's strength has been reduced to the lowest point, and all our efforts to remedy the mischief may in such cases prove unavailing.

The disastrous results of ignorant attempts to supply a substitute for human milk, have brought the whole practice of hand-feeding into disrepute; but if a food be judiciously selected, with a correct appreciation of infant wants, and an accurate estimate of infant powers of digestion, there is no reason why a child fed artificially, with judgment, should not thrive as well as one suckled naturally at his mother's breast. The food we select for the diet of an infant should be nutritious in itself, but it should also be given in a form in which the child is capable of digesting it, otherwise we may fill him with food without in any way contributing to his nutrition, and actually starve the body, while we

load the stomach to repletion. No food can be considered suitable to the requirements of the infant, unless it not only possesses heat-giving and fat-producing properties, but also contains material to supply the waste of the nitrogenous tissues; therefore, a merely starchy substance, such as arrowroot, which enters so largely into the diet of children, especially among the poor, is a very undesirable food for infants, unless given in very small quantities, and mixed largely with milk.

The most perfect food for children, the only one, indeed, which can be trusted to supply in itself all the necessary elements of nutrition, in the most digestible form, is milk. In it are contained nitrogenous matter in the curd, fat in the cream, besides sugar, and the salts which are so essential to perfect nutrition. The milk of different animals varies to a certain extent in the proportion of the several constituents, some containing more curd, others more cream and sugar; but the milk of the cow, which is always readily obtainable, is the one to which recourse is usually had, and when properly prepared, this is perfectly efficient for the purpose required. Cow's milk contains a larger proportion of curd and cream, but less sugar, than is found in human milk, and these differences can be immediately remedied by dilution with water, and the addition of cane or milk sugar in sufficient quantity to supply the necessary sweetness. But there is another and more important difference between the two fluids which must not be lost sight of. If we take two children, the one fed on cow's milk and water, the other nursed at his mother's breast, and produce vomiting directly after a meal by friction over the abdomen, we notice a remarkable difference in the matters ejected. In the first case, we see the curd of the milk coagulated into a firm, dense lump; while in the second, the curd appears in the form of minute flocculent loosely connected granules. The demands made upon the digestive powers in these two

cases is very different, and the experiment explains the difficulty often experienced by infants in digesting cow's milk, however diluted it may be, for the addition of water alone will not hinder the firm clotting of the curd. In order to make such milk perfectly satisfactory as a food for new-born infants, further preparation is required, and there are two ways in which the difficulty may be overcome.

The first method consists in adding an alkali, as lime-water, to the milk. To be of any service, however, the quantity added must be considerable, and one or two teaspoonfuls—the addition usually made to a bottleful of milk and water—is quite insufficient to effect the object desired. Lime-water contains only half a grain of lime to the fluid ounce; of this solution, so small a quantity as two teaspoonfuls would be scarcely sufficient even to neutralize the natural acidity of the milk. But it is necessary to do much more than this. Lime-water, no doubt, acts by partially neutralizing the gastric juice—the rennet naturally existing in the child's stomach—so that clotting of the curd is in great part prevented, and the milk passes little changed out of the stomach to be fully digested by the intestinal secretions in the bowels. To attain this object, at least a third part of the mixture should consist of lime-water. For a new-born infant, two tablespoonfuls of milk may be diluted with an equal quantity of plain filtered water, and then be alkalized by two tablespoonfuls of lime-water. This mixture, of which only a third part is milk, can be sweetened by the addition of a teaspoonful of milk-sugar. If thought desirable, a teaspoonful of cream may be added. The whole is then put into a perfectly clean feeding-bottle, and is heated to a temperature of about 95° Fahr.; by steeping the bottle in hot water; when warmed, it is ready for use. The proportion of milk can be gradually increased as the child gets older.

There is another plan by which the caseine of cow's milk may be rendered digestible; it is by adding to

the milk a small quantity of some thickening substance, such as barley-water, isinglass, or even one of the ordinary farinaceous foods. The action of all of these is the same, and is an entirely mechanical one. The thickening substance separates the particles of curd, so that they cannot run together into a solid lump, but coagulate separately into a multitude of small masses. By this means the curd is made artificially to resemble the naturally light clot of human milk, and is almost as readily digested by the infant.

Although any thickening matter will have the mechanical effect desired of separating the particles of curd, yet it is not immaterial what substance is chosen. The question of the farinaceous feeding of infants is a very important one, for it is to an excess of this diet that so many of their derangements may often be attributed. Owing to a mistaken notion that such foods are peculiarly light and digestible—a notion so widely prevalent that the phrase “food for infants” has become almost synonymous with farinaceous matter—young babies are often fed as soon as they are born with large quantities of corn-flour or arrowroot, mixed sometimes with milk, but often with water alone. Now, starch, of which all the farinæ so largely consist, is digested principally by the saliva, aided by the secretion from the pancreas, which convert the starch into dextrine and grape-sugar previous to absorption. But the amount of saliva formed in the new-born infant is excessively scanty, and it is not until the fourth month that the secretion becomes fully established. Again, according to the experiments of Korowin, of St. Petersburg, the pancreatic juice is almost absent in a child of a month old; even in the second month, its secretion is very limited, and has little action upon starch. It is only at the end of the third month that its action upon starch becomes sufficiently powerful to furnish material for a quantitative estimation of the sugar formed. Therefore, before the age of three

months, a farinaceous diet is not to be recommended—is even to be strongly deprecated, unless the starchy substance be given with great caution and in very small quantities. If administered recklessly, as it too often is, the food lies undigested in the bowels, ferments, and sets up a state of acid indigestion, which in so young and feeble a being, may lead to the most disastrous consequences. In fact, the deaths of many children under two or three months old, can often be attributed to no other cause than a purely functional abdominal derangement, excited and maintained by too liberal feeding with farinaceous foods. There is, however, one form of food, which, although farinaceous, is yet well digested even by young infants, if given in moderate quantities. This is barley water. The starch it contains is small in amount, and is held in a state of very fine division. When barley water is mixed with milk in equal proportions, it ensures a fine separation of the curd, and is at the same time a harmless addition to the diet. Isinglass or gelatine, in the proportion of a teaspoonful to the bottleful of milk and water, may also be made use of, and will be found to answer the purpose well.

Farinaceous foods, in general, are, as has been said, injurious to young babies, on account of the deficiency during the first months of life of the secretions necessary for the conversion of the starch into dextrine and grape-sugar—a preliminary process which is indispensable to absorption. If, however, we can make such an addition to the food as will insure the necessary chemical change, farinaceous matter ceases to be injurious. It has been found that by adding to it malt in certain proportions the same change is excited in the starch artificially as is produced naturally by the salivary and pancreatic secretions during the process of digestion. The employment of malt for this purpose was first suggested by Mialhe in a paper read before the French Academy in 1845, and the suggestion was put

into practice by Liebig fifteen years later.

"Liebig's Food for Infants" contains wheat flour, malt, and a little carbonate of potash, and has gained a well-deserved celebrity as a food for babies during the first few months of life. The best form with which I am acquainted is that made by Mr. Mellin, under the name of "Mellin's Extract for preparing Liebig's Food for Infants." In this preparation, owing to the careful way in which it is manufactured, the whole of the starch is converted into dextrine and grape-sugar, so that the greater part of the work of digestion is performed before the food reaches the stomach of the child. Mixed with equal parts of milk and water, this food is as perfect a substitute for mother's milk as can be procured, and is readily digested by the youngest infants. It very rarely, indeed, happens that it is found to disagree.

In all cases, then, where a child is brought up by hand, milk should enter largely into his diet, and during the first few months of life he should be fed upon it almost entirely. If he can digest plain milk and water, there is no reason for making any other addition than that of a little milk-sugar and cream; but in cases where, as often happens, the heavy curd taxes the gastric powers too severely, the milk may be thickened by an equal proportion of thin barley-water, or by adding to each bottleful of milk and water a teaspoonful of isinglass or of "Mellin's Extract."

Having fixed upon the kind of food which is suitable to the child, we must next be careful that it is not given in too large quantities, or that the meals are not repeated too frequently. If the stomach be kept constantly overloaded, even with a digestible diet, the effect is almost as injurious as if the child were fed upon a less digestible food in more reasonable quantities. A healthy infant passes the greater part of his time asleep, waking at intervals to take nourishment. These intervals must not be allowed to be too short, and it is a great mis-

take to accustom the child to take food whenever he cries. From three to four ounces of liquid will be a sufficient quantity during the first six weeks of life; and of this only a half or even a third part should consist of milk, according to the child's powers of digestion. After such a meal the infant should sleep quietly for at least two hours. Fretfulness and irritability in a very young baby almost always indicate indigestion and flatulence; and if a child cries and whines uneasily, twisting about his body and jerking his limbs, a fresh meal given instantly, although it may quiet him for the moment, will, after a short time, only increase his discomfort. During the first six weeks or two months, two hours will be a sufficient interval between the meals; afterwards this interval can be lengthened, and at the same time a larger quantity may be given at each time of feeding. No more food should be prepared at once than is required for the particular meal. The position of the child as he takes food should be half reclining, as when he is applied to his mother's breast, and the food should be given from a feeding-bottle. When the contents of the bottle are exhausted, the child should not be allowed to continue sucking at an empty vessel, as by this means air is swallowed, which might afterwards be a source of great discomfort. The feeding apparatus must be kept perfectly clean. The bottle should be washed out after each meal in water containing a little soda in solution, and must then lie in cold water until again wanted. It is desirable to have two bottles, which can be used alternately.

At the age of six months farinaceous food may be given in small quantities with safety, if it be desired to do so; and in some cases the addition of a moderate proportion of wheaten flour to the diet is found to be attended with advantage. The best form in which this can be given is the preparation of wheat known as "Chapman's entire wheaten flour." This is superior for the purpose to

the ordinary flour, as it contains the inner husk of the wheat finely ground, and is therefore rich in phosphates and in a peculiar body called cerealin, which has the diastatic property of changing starchy matters into dextrine. This flour should be slowly baked in an oven until it crumbles into a light grayish powder. At first no more than one teaspoonful should be given once or twice a day, rubbed up (not boiled) with milk. If there be much constipation, fine oatmeal may be used instead of the baked flour.

After the eighth month a little thin mutton or chicken broth or veal tea may be given, carefully freed from all grease. After twelve months the child may begin to take light puddings, well-mashed potatoes with gravy, or the lightly boiled yolk of an egg; but no meat should be allowed until the child be at least sixteen months old. Every new article of food should be given cautiously, and in small quantities at first, and any sign of indigestion should be noted and a return be made at once to a simpler method of feeding.

During all this time the child should be kept scrupulously clean, and his nursery should be well ventilated and not be kept too hot. He should be washed twice a day from head to foot, once with soap. The air of his bedroom should be kept sweet and pure during the day, and at night, if the weather does not allow of an open window, a lamp placed in the fender will insure of a sufficient exchange of air. The child should pass as much of his time as possible out of doors, and while every care is taken to guard his sensitive body against sudden changes of temperature, he must not be covered up with too heavy clothing and shut off from every breath of air for fear of his catching cold. A child ought to lie cool at night, and the furniture of his cot, although sufficiently thick to insure necessary warmth, should not be cumbersome, so as to be a burden. If the above directions are carefully carried out—and the mother should herself see

that they are attended to—few cases will be found to present any difficulty in their management. Exceptional cases, however, are sometimes met with

where special sources of embarrassment may arise. These I propose to consider in a future paper.—*Sanitary Record*.—*The Sanitarian*, Jan., 1875.

THE PHYSIOLOGY OF VERSIFICATION—HARMONIES OF ORGANIC AND ANIMAL LIFE.

BY OLIVER WENDELL HOLMES, M. D.

From The Boston Medical and Surgical Journal.

WE are governed in our apparently voluntary actions by impulses derived from many obscure sources which act upon us almost without our cognizance. The digestive system legislates largely for our habits, bodily and mental, and its condition has no insignificant effect upon our intellectual and spiritual states. We are commanded to a considerable extent by our idiosyncrasies and infirmities. The secret of our diversities] as social beings lies far more in our peptic capacities, in our indifference to exposure or liability to suffer from it, in our sensibility to cold and heat or to the air of ill-ventilated rooms, in the varying amount of sleep we require, in the degree of ability to bear strong light, in the quickness or dullness of our hearing, in the greater or less degree of fatigue induced by the standing posture, and in the demands of internal organs which have a will if not a voice of their own, than our friends who call us good companions or otherwise are always ready to believe.

There are two great vital movements pre-eminently distinguished by their rhythmical character,—the respiration and the pulse. These are the true time-keepers of the body; having a constant relation in health, the proportion being, as Mr. Hutchinson has shown, one inspiration to every four beats of the heart. It is very easy to prove that the first of these rhythmical actions has an intimate relation with the structure of metrical

compositions. That the form of verse is conditioned by economy of those muscular movements which ensure the oxygenation of the blood is a fact which many have acted on the strength of without knowing why they did so.

Let us look first at the natural rate of respiration. Of 1817 individuals who were the subject of Mr. Hutchinson's observations, "the great majority (1731) breathed from sixteen to twenty-four times per minute. Nearly a third breathed twenty times per minute, a number which may be taken as the average."*

The "fatal facility" of the octosyllabic measure has often been spoken of, without any reference to its real cause. The reason why eight syllable verse is so singularly easy to read aloud is that it follows more exactly than any other measure the natural rhythm of respiration. In reading aloud in the ordinary way from *The Lay of the Last Minstrel*, from *In Memoriam*, or from *Hiawatha*, all written in this measure, the first two in iambics, or short-longs, the last in trochaics or long-shorts, it will be found that not less than sixteen nor more than twenty-four lines will be spoken in a minute, probably about twenty. It is plain, therefore, that if one reads twenty lines in a minute, and naturally breathes the same number of times during that minute, he will pronounce one line to each expiration, taking advantage of the pause

* Flint's Physiology, i, 391.

at its close for inspiration. The only effort required is that of vocalizing and articulating; the breathing takes care of itself, not even demanding a thought except where the sense may require a pause in the middle of a line. The very fault found with these octosyllabic lines is that they slip away too fluently, and run easily into a monotonous sing-song.

In speaking the ten syllable or heroic line, that of Pope's Homer, it will be found that about fourteen lines will be pronounced in the minute. If a breath is allowed to each line the respiration will be longer and slower than natural, and a sense of effort and fatigue will soon be the consequence. It will be remembered, however, that the *casura*, or pause in the course of the line, comes in at irregular intervals as a "breathing-place," which term is its definition when applied to music. This gives a degree of relief, but its management requires care in reading, and it entirely breaks up the natural rhythm of breathing.

The fourteen syllable verse, that of Chapman's Homer, the common metre of our hymn-books, is broken in reading into alternate lines of eight and six syllables. This also is exceedingly easy reading, allowing a line to each expiration, and giving time for a little longer rest than usual at the close of the six syllable line.

The twelve syllable line, that of Drayton's Polyolbion, is almost intolerable, from its essentially unphysiological construction. One can read the *ten* syllable line in a single expiration without any considerable effort. One instinctively divides the *fourteen* syllable line so as to accommodate it to the respiratory rhythm. But the *twelve* syllable line is too much for one expiration and not enough for two. For this reason, doubtless, it has been instinctively avoided by almost all writers in every period of our literature.

The long measure of Tennyson's Maud has lines of a length varying from fourteen to seventeen syllables, which are irregularly divided in read-

ing for the respiratory pause. Where the sense does not require a break at some point of the line we divide it by accents, three in each half, no matter what the number of syllables; but the breaks which the sense requires so interfere with the regularity of the breathing as to make these parts of Maud among the most difficult verses to read aloud, almost as difficult as the Polyolbion.

It may be said that the law of relation here pointed out does not apply to the *writing* of verse, however it may be with regard to reading or declaiming it. But the early poems of a people are recited or sung before they are committed to writing, and even if a versifier does not read aloud as he writes, he mentally articulates every line, and takes cognizance instinctively of its physiological adjustment to respiration as he does of its smoothness or roughness, which he hears only in imagination.

The critical test of poetry by the stop-watch, and its classification according to its harmonizing more or less exactly with a great vital function, does not go very far, but it is quantitative and exactly scientific so far as it does go. The average reader will find on trial that the results given above are correct enough to justify the statements made. But here, as in astronomical observation, we must not forget the personal equation. An individual of ample chest and quiet temperament may breathe habitually only fourteen times in a minute, and find the heroic or iambic pentameter,—the verse of Pope's Homer and Gray's Elegy,—to correspond with his respiratory rhythm, and thus to be easier than any other for him to read. A person of narrower frame and more nervous habit may breathe oftener than twenty times in a minute, and find the seven syllable verse of Dyer's Grongar Hill fits his respiration better than the octosyllables of Scott or Tennyson or Longfellow. A quick-breathing little child will learn to recite verses of two and four syllables, like the story of the couple whose predilections in favor of azotized and

non-azotized diet are recorded in our nursery classic, and do it easily, when it would have to catch its breath in the middle of lines of six or seven syllables.

Nothing in poetry or in vocal music is widely popular that is not calculated with strict reference to the respiratory function. All the early ballad poetry shows how instinctively the reciters accommodated their rhythm to their breathing. Chevy Chase or The Babes in the Wood may be taken as an example for verse. God save the King, which has a compass of some half a dozen notes and takes one expiration, economically used, to each line, may be referred to as the musical illustration.

The unconscious adaptation of voluntary life to the organic rhythm is perhaps a more pervading fact than we have been in the habit of considering it. One can hardly doubt that Spenser breathed habitually more slowly than Prior, and that Anacreon had a quicker respiration than Homer. And this difference, which we conjecture from their rhythmical instincts, if our conjecture is true, probably, almost certainly, characterized all their vital movements.

It seems not unlikely that other organic rhythms may be found more or less obscurely hinted at in the voluntary or animal functions. How far is *accent* suggested by or connected with the movement of the pulse, every stroke of which, if it does not lift the brain, as Bichat taught, sends a shock through its whole substance, and compresses it in its unyielding case? It is worth nothing that twenty acts of respiration mean eighty arterial pulsations, and that twenty octosyllabic lines corresponding to these eighty pulsations have exactly eighty ac-

cents. Again, there is a singular coincidence between the average pulsations of the arteries and the number of steps taken in a minute; and as we hurry our steps, the heart hurries to keep up with them. They sometimes correspond so nearly that one is reminded of the relation between the steam-chest, with its two alternately opening valves, and the piston with its corresponding movements, as we see it in the steam-engine. The doctrine of Bichat referred to above has been combated on the ground that the closely imprisoned brain could not be lifted; but the forcible impact of the four columns of arterial blood is none the less real in the normal condition than when the brain is seen to be raised through an accidental opening in the skull. So, also, notwithstanding the gradual equalization of the cardiac impulse, this impulse must be felt very extensively throughout the body. We see that it can lift a limb through a considerable space when we happen to sit with one leg crossed over the other. It is by no means impossible that the regular contractions of the heart may have obscure relations with other rhythmical movements more or less exactly synchronous with their own; that our accents and our gestures get their first impulse from the cardiac stroke which they repeat in visible or audible form. In these funeral marches which our hearts are beating, we may often keep step to the cardiac systole more nearly than our poet suspected. But these are only suggestions to be considered and tested; the relations of verse to the respiratory rhythm will be easily verified and extended by any who may care to take the trouble.

A WARNING to Doctors is issued by the *San Francisco News Letter*, which announces its intention in future of publishing after each death-notice the name of the attending physician. — *American Medical Weekly*.

SMALL-POX EPIDEMICS. — From advices in the public prints it appears that small-pox prevails to a considerable extent in New York City. — *Med and Surg. Rep.*

A CASE OF SUPPOSED HYDROPHOBIA.

From the Carlinville, Ill., Democrat.

THE following article relating to the recent case of *supposed hydrophobia* in this city, was read before the County Medical Association at Shipman on Tuesday, by Dr. J. P. Matthews, of this city, and will no doubt interest many of our readers:

Not so much on account of any peculiar friendship for the poor canine race does this report appear, as a duty incumbent upon every physician to point out to the human family all forms of physiological and hygienic errors wherever or whenever they may occur. This is especially true, when observed by a practitioner of medicine to occur in the families with whom he stands in the relation of family physician. My professional friends will probably feel sufficiently interested to give the views expressed a brief attention.

A case simulating and in some respects resembling hydrophobia has recently occurred in our city, which many, unacquainted with the pathology of the disease, believe to have been a true case of the dreaded malady. The case in the son of Mr. Shay, came first under the observation of the writer as his family physician soon after the inception of what were peculiar nervous phenomena, but a careful inquiry as to the dog that had bitten the boy six weeks previous, revealed the fact that he was not only then, but had been in excellent health. This, together with the fact that the boy could not only drink water, but was relieved from the paroxysms by the application of cold water to his head, precluded in the writer's mind the possibility of its being a case of hydrophobia. For this opinion expressed to the friends, the writer was discharged and others attended, whose diagnosis and prognosis were more in unison with the boy's surroundings.

The opinion, that it was a species of delusional insanity, supervening

upon the biting of a healthy dog, six weeks previous, which again attacked but did not bite him, four weeks subsequent to the biting, all occurring too, upon the arrest of a chronic discharge from one ear, the latter giving rise to an irritation of the brain and nervous system, has been undoubtedly confirmed by the sequel of the case. A careful report which embodied the above opinion, was sent by the writer to Prof. William A. Hammond, of New York, than whom, no man living to-day, stands higher upon diseases of the mind and nervous system. His opinion, which was requested, is herewith appended:

Jan. 10th, 1875.

Dear Doctor: The case you describe is undoubtedly one of hysterical or imaginary hydrophobia, many cases of which occur here every year.

There is not a single element of real hydrophobia about it.

Your view of the case does not differ in any respect to mine.

Yours, Respectfully,

WILLIAM A. HAMMOND.

The report was submitted to Prof. Hammond because he has, in the last year, in his careful and profound investigations of the nervous system, made the disease under consideration a special study, and it must not be forgotten, that he in his report to the New York Neurological Society, was the first to point out an actual lesion in the root of the spinal chord (*medulla oblongata*) produced in the cases of death caused by hydrophobia.

The secondary cause, then, or the cause of the pathological phenomena of the disease has been discovered by scientific research; but the peculiar principle or virus—the inoculation into the circulation, of which produces it, science as yet fails to point out. This principle or poison that exists upon the teeth of the rabid animal,

acts as specifically upon the medulla oblongata as that of small-pox upon the skin, diphtheria upon the throat or cholera upon the intestinal canal, and when that virus is not present a symptom resembling it, is no more hydrophobia than tetter or acne is small-pox, a sore throat from cold is diphtheria, or a mere diarrhœa is cholera. A conclusion in the above case was reached from this course of reasoning, and was regarded sufficient without the symptoms as they appeared, inasmuch as the boy was bitten by a perfectly healthy dog.

The authors upon the subject, at the writer's command, are of no less note than Watson, Aitkin, Flint, Williams, Hartshorne, etc.; all give the particular symptoms to be "severe constriction about the throat; spasmodic action of the diaphragm and a particular distress at the stomach, all of which are aggravated or brought about by attempts to take liquids, or by the least breath or current of air on the surface of the body, which produces in the first instance an effect resembling that produced upon stepping into a cold bath. Tenacious and clammy mucus issues from the mouth, paroxysms of frenzy or uncontrollable, impulsive violence (rabidity) supervene. The duration of the disease varies from three to six or seven days, the greater number of cases terminating in death on the second and fourth days from the accession of the symptoms. Death is generally sudden and unexpected at the moment."

The authors also agree that the first stage of hydrophobia is ushered in by the patient's attention being aroused by a numbness extending from the base of the brain to the wound, which, if it occurs in the hand or foot, often produces a tremulous feeling, slight fever and headache, which last but a short time before the hydrophobic stage begins.

In the case under consideration, restlessness at night and dreaming of dog constituted the nervous symptoms that occurred before the paroxysms, and even with a pain in the side

of the forehead, which has been accounted for in the arrest of the purulent discharge from the ear, the writer could not at this time see any reason for forming so grave a diagnosis.

The authors also agree that the second or hydrophobic stage is ushered in as the word implies, with a great difficulty, if not an utter impossibility of swallowing liquids, a symptom also not present in Mr. Shay's boy. In fact the only real symptom of the malady that occurred was the snapping and frothing at the end of the paroxysms which the writer has seen, and do occur in prolonged epileptic fits.

This, then, could not have been a case of hydrophobia; inasmuch as science teaches us that it is a result of a specific poison introduced into the circulation.

Dr. Condie, in a note in his edition of Watson's Practice, says that many well authenticated cases are on record in which disease having all the pathognomonic symptoms of hydrophobia occurred without the slightest evidence of having been bitten by a rabid animal, but this was written years before the above referred to investigations were made upon the subject; and Youatt, in a pamphlet upon hydrophobia, believes it to be communicable only by the dog, the fox, the wolf, jackal and cat.

A bite from a healthy dog then, is no more to be feared than any other contused wound; but if the dog is suspected with having the disease, cauterize the wound freely with caustic potash, or lunar caustic, or what would be still safer, immediately excise the part with a knife. This is recommended as the safest preventive. As to curative agencies, the writer is sorry that science as yet offers but little relief. This fact makes the cases fit pabulum for snapping doctors, magic and mad-stones, the latter of which is given as an ancient tradition by Dr. Charles P. Russell, in an article on some superstitions on hydrophobia in the December number of the *Popular Science Monthly*. He refers in his article to

the superstition relative to dog-days, the cutting a worm from beneath the dog's tongue, and biting off the dog's tail, both operations to be performed in puppyhood, to prevent the mature dog from going mad.

He says "The ancients ascribe peculiar virtues to a variety of stone called *ammonis cornu*, which was supposed to possess the property of extracting the virus from wounds inflicted by mad dogs or venomous reptiles. Pliny alludes to it under the above name, and it has since received the appellation ammonite, both terms referring to its resemblance in shape to the horns which surrounded the head of Jupiter Ammon. It has also in more modern times been popularly known as the mad-stone and the snake-stone. Scientifically speaking, it is the fossil petrification of an extinct mollusk, closely resembling nautilus, having a spiral, symmetrical and chambered shell, ranging in size from that of a small bean to that of a large cart-wheel. In the East Indies and China, it has for ages enjoyed the reputation mentioned."

And after speaking, as a hocus-pocus, of a Chinese snake-stone that was brought to this country about A. D. 1740, he says: "These wonderful stones doubtless still exist with virtues unimpaired—a profitable inheritance for those whose privilege it is to bestow their inestimable boon upon credulous humanity."

Dr. Seaman.—I saw the Shay case referred to in the report, and also the so-called mad-stone. It is a horn-blende prepared stone. Does not appear porous; of a bluish color and striated. It did not stick sufficiently to prevent it falling by its own weight. The hand was the part it was applied to, and when the hand was allowed to turn to one side the stone would roll off. Its sticking is purely mechanical. I endorse the views embodied in the report.

I had a case like the one referred to, occurring in a fitty family, which was supposed by the friends to be hydrophobia, but was hysteria. The

case lived, but had many attacks.

Dr. Wm. C. Day.—I saw a mad-stone which was exhibited to the medical class in St. Louis, the keeper of it being present. It was white, about half as large as a turkey egg, very porous, finely polished, chalky appearance. It was kept in wax. Prof. J. T. Hodgen made it the subject of a lecture. Said it was one of the humbugs of medicine; that its sticking is purely mechanical, depending on adhesion and capillary attraction, and not on any affinity for the poison.

Dr. Harris.—I have seen the stone referred to by Dr. Seaman. It is essentially as he described it.

Dr. A. B. Penniman.—Gave a verbal report of a case of unusual nervous trouble occurring in a person who had been bitten by a dog, several years before. The attacks, which were called "mad-fits" by the friends, occurred about three times annually, at irregular intervals. I did not believe it to be hydrophobia.

Dr. Matthews.—It will be remembered the stone referred to by Dr. Seaman, was applied in a case of *true* hydrophobia, in Carlinville, a few years ago. The patient was a German, whose name I have forgotten, but was a patient of Dr. DeLieu's. The man died in a few days.

Other opinions were expressed, which were about as follows:

That there are cases of hydrophobia there is no doubt, but they occur much less frequently than people suppose. The mad-stone is a traditional superstition, like dog-days, the signs of the Zodiac as controlling the circulation of the blood, etc., having no facts in science to support them.

The meeting of the Society was well attended. Many subjects of importance were discussed; most conspicuous was an essay on Cerebro-Spinal Fever.

Society adjourned to meet in Carlinville, third Tuesday in April next.

B. M. WILSON, Sec'y.

A. C. CORR, Sec'y *pro tem*.

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PARALYSIS OF THE ACCOMMODATION OF THE EYE, FOLLOWING AN ATTACK OF DIPHTHERIA.

By P. A. CALLAN, M.D., ASSIST. SURGEON NEW YORK EYE INFIRMARY.

THE two cases here presented, occurred in the service of Dr. Henry D. Noyes, at the N. Y. Eye and Ear Infirmary. Considering the large amount of diphtheria in the city at present, and the few cases of eye complications seen in the present epidemic, we think they may be of interest to the profession.

Mary L., age 11, Patterson, N. J. The patient, about the middle of September, had an attack of diphtheria, from which she apparently recovered, and she enjoyed perfect health up to the first of November, when she complained of not being able to see distinctly any object, being blurred and hazy, so that she was obliged to discontinue going to school. The mother of patient noticed about the same time, that she spoke through her nose, and quite indistinctly, having an impediment in her speech, as the mother designated it. This condition of affairs having remained unchanged, she was brought to the city, November 16, when she came under our observation for the first time. Patient's physique, fair; when spoken to, she readily responded, but her pronunciation was quite defective, and she spoke through her nose. Tongue and pharynx normal in appearance; the uvula quite long; and when patient was made to articulate, it moved very slightly. Patient had some difficulty in swallowing. The pupils of both eyes were slightly dilated; the vision of both eyes was $\frac{1}{20}$ with glasses + $\frac{1}{20}$ vision = $\frac{1}{20}$. At a distance of ten inches, she could not

see ordinary print, and it was with difficulty, that she managed to make out Snellen 6 $\frac{1}{2}$, at the ordinary reading distance, which should be read at 6 $\frac{1}{2}$ feet, but with her proper correcting convex glass, she could read with comparative ease.

Ophthalmoscope showed a hypermetropic build of eye and a normal fundus. Patient had a hypermetropic of $\frac{1}{20}$.

Treatment.—Tonics, with local applications of electricity. November 30, patient's vision has very much improved, but the voice remains much the same. Prognosis very good.

Joseph M., age 4 $\frac{1}{2}$ years, N.Y. City. Patient had an attack of diphtheria about October 1st, from which he slowly recovered. About five weeks from his attack, the mother noticed that he could not see small objects which were in close proximity: small playthings for instance, would fall out of his hands and he could not find them—distant objects on the other hand were seen. At the same time, he had hemiplegia of the left side, with partial ptosis of the left eye.

Nov. 19.—The patient came under our observation for the first time, when we found paralysis of acc. in addition to the others just mentioned. Ophthalmoscopic examination showed the eye to be hypermetropic in build, and the fundus perfectly normal. Patient was treated as case No. 1.

Nov. 27.—Vision and ptosis much improved; hemiplegia much the same.—*N. Y. Med. Record.*

DR. MARY PUTNAM JACOBI, during the recent meeting of the New York Pathological Society, temporarily occupied the chair during the presenta-

tion of a specimen by the President. This is one way of answering the question of women's rights in medicine.—*N. Y. Med. Record.*

HINDRANCES TO VACCINATION.—It is of the first importance to uniform success of the practice of vaccination that the vaccinator shall be possessed of a special skill and knowledge of the subject. The physician must have acquired particular practical knowledge and an acquaintance, not only of the true genuine vaccination in all its regular stages, but he must be able to detect the least variation from the normal course at every stage. Vaccinators in Great Britain are required to stand an examination as to their qualifications before receiving an appointment. It is apprehended that great advantage would accrue to the people if the same rule were in existence in the United States.

It is the conviction of not only every medical man, but of every intelligent citizen, that a properly performed and successful vaccination, whether with humanized or animal virus, is as complete a protection against small-pox now as it ever was, and is a more perfect prophylactic than we possess against any other known disease. But it is of the highest importance, and a prerequisite to success, that the vaccinator obtain virus of unquestionable purity. The particular mode of introducing the virus perhaps makes but little difference in the result, provided no undue injury is done to the tissue, and the lymph, or dissolved crusts, are brought in direct contact with the absorbents, although the shape of the resulting vesicle may depend somewhat upon the particular operation. The thumb lancet is the best instrument to use.

Insusceptibility to vaccination is rare. Failure to induce vaccination, is more frequently the fault of the virus used, or of the operator. In reference to transmitting diseases in vaccine matter, Marson, who has vaccinated over fifty thousand individuals, "has never seen other diseases communicated with vaccine disease, nor does he believe in the popular reports that they are so communicated." Spurious vaccination has been found to pervert or greatly embarrass subsequent successful vacci-

nation. Thus it is necessary to secure good and complete primary vaccination. It is probable that a fruitful cause of insufficient vaccination in the United States, originates from the want of quantity rather than defective quality of the vaccine fluid.—*J. M. Toner, M.D., American Public Health Association, 1874.—The Sanitarian.*

ADIPOCERE.—During the past summer, an example of the conversion of the tissues of the body into that spermaceti-like substance known as adipocere occurred in the body of a woman which had been dredged from the Thames, in London, after having been embedded in the mud for an unknown period—probably two or three years. Upon rapping, the body was hard and perfectly resonant, and the whole of the internal organs were converted into a solid mass, which, like the rest of the body, when cut into, had the appearance and consistence of hard, discolored wax. One leg was absent, having, probably, been separated by the weight of the mud when the body was pulled up by the dredger.—*N. Y. Med. Record.*

INFLUENCE OF A PROPER DRAINAGE AND WATER SUPPLY UPON THE MORTALITY OF A TOWN.—In the twelve years immediately preceding the completion of the drainage and water supply system of Salisbury, England, the yearly mortality amounted to 27 per 1,000. During the twelve years following, the mortality fell to 20 per 1,000; and during the last three years, it was only 17 per 1,000. During the latter period, typhoid fever was almost unknown, and the cholera, which in 1849, or before these changes had been made, was fatal in nearly 200 cases—was only fatal in 14 cases in 1854, the time at which the works were under completion. In 1866, there was not a single case in the town.—*Geigel's Offentl. Gesundheitspflege.*